UNITED STATES DEPARTMENT OF AGRICULTURE

PRODUCTION AND MARKETING ADMINISTRATION

FRUIT AND VEGETABLE BRANCH

RECEIVING MARKET INSPECTION

OF

CITRUS FRUIT

Washington, D. C.

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For Use of U. S. D. A. Fresh Fruit and Vegetable Inspectors Only

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FRESH FRUIT AND VEGETABLE INSPECTION SERVICE

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OF

CITRUS FRUIT 1/

TYPES (1)

There are numerous types of citrus fruits found on the markets, chief of which are sweet oranges, comprising standard varieties, seedlings, blood oranges, etc.; Mandarin oranges (tangerines, Satsumas, and King oranges); grapefruit (Pomelos); lemons, and limes.

PRODUCING AREAS (2)

The markets of the United States are largely supplied with citrus fruit grown in limited areas in a few States where the temperature goes but little below freezing. Importations from foreign countries have declined until they offer little competition with domestically grown fruit. In the United States the important commercial producing centers are in California, Florida, Texas and Arizona. Other producing sections of much lesser importance are located in Alabama, Louisiana, and Mississippi.

California. The California producing districts are commonly grouped into four sections designated as Desert, Southern, Central and Northern. (3)

The Desert section includes the Coachella and Imperial Valleys, the acreage consisting principally of grapefruit. (4)

The Southern section comprises the counties of Riverside, San Bernardino, San Diego, Orange, Los Angeles, Santa Barbara, and Ventura. This is the largest single producing area in the United States. (5)

The Central section is located along the foothills of the Sierra Nevada Mountains in the southern end of the San Joaquin Valley. The greater part of the plantings are in Tulare County with Porterville, Strathmore, Lindsay, and Exeter as the principal shipping points. Some plantings are found in Kern County on the south, and Fresno County on the north. (6)

1/ Instructions in this Handbook regarding "Lemon Juice Determination", "Inspection for Internal Quality of Common Sweet Oranges", and "Inspection for Tree Freezing and Dryness Associated With Tree Dryness" supersede separate memorandums which have been issued on these subjects. This is a revision of handbook "Receiving Market Inspection of Citrus Fruit" revised April 15, 1940.

(7) The Northern section produces less than one percent of present shipments from California. The groves are located in the foothills east of the city of Sacramento in Sacramento County, and in the northern part of the Sacramento Valley in Butte, Tahama, and Glenn Counties, with Butte County leading in production at the present time.

(8) The principal varieties of oranges produced in California are the Washington Navel and Valencia, with some scattered plantings of Thompson Navels. The Navel is shipped from November to May, and the Valencia is shipped from April to Christmas.

(9) The Marsh Seedless is the only important grapefruit variety grown in California. From the Desert section, the majority of this fruit is shipped during the period from November to July, and from the Southern and Central sections from June to November.

(10) California has practically a monopoly of domestic production of lemons, very few being grown in Florida and Texas. The two important varieties are the Eureka and Lisbon.

(11) Florida. In Florida the citrus producing areas may also be roughly grouped into four sections, and designated as the Indian River section, the Ridge section, Central section, and the West Coast section.

(12) The Indian River section is comprised of Brevard and St. Lucie Counties, both noted for fruit of exceptionally smooth texture and thin skin.

(13) The Ridge section consists of Polk, DeSoto, Highland and Hardee Counties.

(14) The Central section is comprised of Orange, Lake, Seminole, Volusia, Putnam, Osceola, and Marion Counties.

(15) The West Coast section takes in Pinellas, Hillsboro, Manatee, Lee, and Sarasota Counties.

(16) The principal varieties of oranges grown in Florida are Hamlin, Parson Brown, Pineapple and Valencia. The Temple orange is a well known, loose skinned orange of good eating quality, and is becoming increasingly popular.

(17) The leading varieties of grapefruit are Marsh Seedless and Duncan (seeded). Also Marsh Pink (seedless), Foster Pink (seeded), and various strains of "Red Blush" or "Ruby Red" (a Marsh Pink Sport) are coming into bearing.

The Dancy is the principal variety of tangerines. (18)

Limes are produced and shipped to some extent. The chief type is the Persian (Tahiti) lime, with some "Key" or Mexican type limes being shipped. They are grown principally in Dade County. (19)

Texas. In Texas the main citrus producing area is in what is commonly called the lower Rio Grande Valley. This section consists mainly of Cameron, Hidalgo and Willacy Counties. North of these, Brooks and Jim Wells Counties produce a small amount of grapefruit and oranges. The Laredo and Winter Garden sections have scattered citrus groves, but no car lots are shipped from this area. (20)

The grapefruit varieties generally shipped are Marsh Seedless, Marsh Pink and "Red Blush" or "Ruby Red." Also, a small volume of Foster Pink and Duncan are shipped. (21)

Hamlin, Pineapple and Valencia are the principal varieties of oranges shipped. A few Navels and various seeded varieties are shipped early in the season. (22)

Gulf Coast States. Alabama, Louisiana, and Mississippi grow a limited acreage of Satsuma oranges. Also, the Delta area of Louisiana produces a limited volume of various types of oranges. Practically all of this production is marketed in near-by cities. (23)

Arizona. The principal varieties of oranges grown in Arizona are the Navel and Valencia, which are generally marketed between November and June. (24)

The Marsh Seedless is the main variety of grapefruit. The shipping season extends from about the 1st of November to July, with the peak movement occurring in March and April. (25)

IMPORTS (26)

A limited tonnage of grapefruit, limes, etc. is imported from Puerto Rico, Cuba, and the British possessions. When markets are favorable, oranges are imported from the El Mante and Montemorelos sections of Mexico. The varieties imported from Mexico are the same as those produced in Florida and Texas. Lemons are frequently imported from Italy.

(27) FEES

For the purpose of assessing fees for either condition or quality, or quality and condition, each commodity shall be considered as a separate lot. For example: Oranges, grapefruit, tangerines, limes and lemons shall be considered different lots.

(28) When a car contains mixed citrus fruits, all should be reported in the body of a single certificate. If it is impractical to cover all products in a car on a single certificate, two or more may be issued.

(29) CAR INITIALS AND NUMBER, KIND OF CAR, WHERE INSPECTED AND CONDITION OF CAR

See D. M. Handbook - Part II (Same headings).

(30) PRODUCTS INSPECTED AND DISTINGUISHING MARKS

See D. M. Handbook - Part II (Same heading).

(31) The following information should be given under this heading:

1. Type of fruit inspected (Varieties in some cases).
2. Type of container.
3. Identifying marks.
4. Quantity inspected.

(32) 1. Type or Variety. The Inspection Service has no legal authority to certify "variety" alone. The Act under which we operate states that inspection may be made for "Quality and Condition." If, and when, a statement of "variety" is made, it is to identify the product inspected and is, therefore, secondary on the certificate.

(33) When boxes are marked with the name of the variety, it should be quoted rather than a positive statement made as to variety except as authorized in the following paragraph.

(34) As a general policy, the inspector should not attempt to certify the variety of oranges with the exception of Kings and Temples which can with certainty be distinguished from other varieties and Navels which may be certified as "Navels" without attempting to show whether Washington Navels or Thompson Navels. In some cases, it is difficult to definitely identify Pineapples from Valencias as grown in Florida, and Valencias and seedlings as grown in California, whose characteristics are influenced by root stock, type and drainage of soil and the fertilization, cultivation and cultural methods of the groove. Requests for variety certification should be declined with an

explanation that the law under which the Inspection Service operates does not cover variety certification. However, count of seed and color of flesh may be certified in accordance with paragraph headed "Number of Seeds and Color of Flesh."

In marketing lemons no distinction is usually made between varieties, all being shipped simply as lemons. (35)

Statements such as "Lemons", "King Oranges", "Temple Oranges", "Grapefruit", "Navel Oranges", "Limes - seeded type", "Limes - seedless type", or "Persian Limes" are proper descriptions. (36)

2. Type of Containers. In Florida, Texas, Louisiana and the West Indies Islands, the 1-3/5 bushel wire-bound crate and the 1-3/5 bushel standard nailed box are the most common type citrus containers. The other rigid type containers in use are usually fractions of this container. (37)

In California and Arizona, the majority of the citrus fruits are packed in the 1-2/5 bushel wire-bound crate and the 1-2/5 bushel standard nailed box. The other rigid type containers which are used are usually fractions of this container. (38)

Other domestic type containers in use include standard nailed boxes without partitions, wire-bound crates with partitions, 4/5 bushel regular wire-bound crate, 4/5 bushel flat type wire-bound crate, 1/2 box generally referred to as "half strap", open mesh sacks usually of 5 pounds, 8 pounds or half box capacity, bushel and half bushel baskets and cardboard cartons varying from the small size for limes, 1/2 box for lemons to the standard box size. (39)

The type of container should always be mentioned under this heading without going into too much detail, except for odd sizes which should be described in detail. (40)

3. Identifying Marks. The certificate should always show complete data as to brands, state of origin and other identifying marks such as sizes, weight, grades and variety when shown. When "color added" is stamped on the container or fruit, it should also be reported in connection with the identifying marks. (41)

4. Quantity Inspected. The number of packages must be shown on the certificate, either as a statement on authority of the inspector, or as "Storage" or "railroad record", "checker's count", "applicant's count", or "manifest." Thus: "Applicant's count 525 crates", or "General Cold Storage record shows 525 crates." (42)

(43) Examples:

1. ORANGES in open mesh sacks branded "8 lbs. net, Star Brand, Fla.", inserted tags stamped "U. S. No. 1, Pineapples", and to denote size (150s to 216 sizes noted), tags and most fruit stamped "color added." Applicant states manifest shows 5,250 sacks.

2. ORANGES in wire-bound crates labeled "Sunkist Brand, Calif." and stamped "Valencia" and to denote size (150 to 200 sizes noted). Manifest shows 464 crates.

(44) CONDITION OF LOAD AND CONTAINERS

See D. M. Handbook, Part II (Same heading).

Strapping of boxes for export should be reported under this heading.

(45) CONDITION OF PACK

See D. M. Handbook, Part II (Same heading).

(46) It has become standard practice in Florida and Texas to ship citrus fruits without wrapping, especially in wire-bound crates. Therefore, when citrus from these states are not wrapped, it need not be mentioned. In California and Arizona, practically all grapefruit and lemons are wrapped. Oranges are packed with various stages of wrapping. Most lots have only the top layer, top layer and side rows, or top and bottom layers and side rows wrapped, with the remainder of the fruit not wrapped. Many lots are fully wrapped, especially those shipments going for export. The degree of wrapping on California and Arizona citrus fruits should be described as this is sometimes a point of controversy. In some export programs for oranges, "Blind Pack" is permitted in lieu of wrapping each individual fruit. In connection with export programs, "Blind Pack" means that the fruits on the top, bottom and sides of the box are individually wrapped.

(47) When Diphenyl wraps or liners are specified in the contract and the inspector can definitely determine this factor without any question of doubt, it will be satisfactory to report this information under the Pack heading. Thus: "Crates lined with Diphenyl liners."

(48) Citrus packs should be judged both according to the bulge and firmness of the pack.

In addition to the statement concerning condition of pack, it will sometimes be desirable to mention the bulge. As a rule when the bulge is sufficiently high to indicate a satisfactory pack, it need not be mentioned. Unusual conditions, when the bulge is 2 to 2-3/4 inches high, or when it is too low to be satisfactory and the cover shows practically no bulge, it should be reported. Some packs may have a high bulge, but the pack will be loose, while, on the other hand, flat packs will at times be found with the fruit tight in the box. Wire-bound boxes are not expected to have as high a bulge as standard boxes. (49)

Tightness of Pack. The following terms should be used to describe packs: (50)

Very tight - meaning that the pack is too tight and tends to cause injury.

Tight. - meaning that both pack and bulge are satisfactory.

Fairly tight - meaning the condition between "tight" and "slack", that is, tight enough to prevent the specimens from moving within the package, but not as nearly ideal as a "tight" pack. This condition should be qualified in the case of the standard box by a statement giving the height of bulge.

Slack - meaning that the package is not full. This statement should also be qualified by showing how much fruit is below the level of the lid.

Examples: (51)

(1) Tight pack in most boxes; many boxes 1/2 inch slack to level full.

(2) Fairly tight, lids showing 1/2 to 1 inch bulge.

Tightness of Wire-bound Crates. In determining the tightness of wire-bound crates, the inspector should take into consideration whether the package is on a rigid surface, such as a car or pier floor, or whether it is resting on the ends of other crates of fruit which might permit the bottom side to become convex. This would make the crate appear slack at the top side while in reality it is fairly tight. (52)

Bulge. In reporting the height of the bulge, the measurement should be made from the center partition to the center of the lid, provided the partition is level with the sides and the lid fits snugly and not drawn down by the center strap. (53)

(54) Standard Pack. The U. S. Standards for various citrus fruits, except limes, have defined the term "Standard Pack." It is satisfactory to certify on the basis of "Standard Pack" as well as on the U. S. Grades. A load may meet the requirements of the U. S. Grades and not meet the requirements of "Standard Pack", and vice versa.

(55) The actual certification of Standard Pack should be made under the Grade heading in connection with the grade statement but the tightness of pack, and the uniformity of sizing which are part of the requirements of Standard Pack should be shown under the headings Pack and Size. As a general policy, Standard Pack certification will be made only on specific request.

(56) Reporting Gross or Net Weight of Containers. An inspection should not be made only for net or gross weight. If requested, in connection with a condition or grade inspection, the weight may be reported under "Pack." Report the range of weights, the average, and the percentage of containers under the weight marked on the containers. The following general rules should be followed when reporting net or gross weights:

For Packages Weighing:	Report to the Nearest:
2 lbs. or less	1/2 ounce
Over 2 to 5 lbs.	Whole ounce
Over 5 to 10 lbs.	1/4 lb.
Over 10 to 40 lbs.	1/2 lb.
Over 40 lbs.	Whole pound

(57) The regular spring scales furnished to inspectors are not sensitive enough to weigh to the nearest 1/2 ounce. Therefore, if inspectors are requested to report weights of small packages, they should try to make arrangements with the applicant for the use of more sensitive scales. Prepackagers, who put up small packages, are usually equipped with scales sensitive enough to weigh accurately to the nearest 1/2 ounce.

(58) TEMPERATURE OF PRODUCT

See D. M. Handbook - Part II (Same heading).

(59) SIZE

See D. M. Handbook - Part II (Same heading).

(60) A knowledge of the manifest of a lot of citrus fruit is essential to a satisfactory size inspection. Size generally will not be in question unless the pack is slack or the fruit is irregular in appearance. If the pack is slack or the fruit is irregular, the receiver may request inspection to determine whether the fruit meets the size requirements of the standards. In that event, size should be determined on the basis of the standard in question. All standards have definite size requirements, except limes.

In making inspections for size, each size should be considered separately and treated as a separate lot. (61)

In measuring fruit for diameters, the greatest dimension measured at right angles to a line from stem to blossom end of the fruit should be used. These measurements should be made with a caliper which has rigid jaws. Turn the fruit in the caliper to make sure that the greatest dimension is obtained. Pliable fruit which has been squeezed out of shape account of tight pack should not be used in the sample for measurement. (62)

In establishing U. S. Standards for Florida grapefruit and oranges, two counts are designated in some of the diameter ranges in order to agree with the actual counts which are packed in both the standard nailed box and wire-bound crate. When two counts are designated for one diameter range, such as 54 or 56 size for grapefruit, each count shall meet the diameter range of 4-6/16 to 4-15/16 inches. Likewise, when 288 or 294 counts are designated for oranges, each count shall meet the diameter range of 2-6/16 to 2-12/16 inches. The 250 size for oranges were omitted from these standards since 252 count is packed in both the standard nailed box and wire-bound crate. (63)

The size marks on the containers should be reported under the Products heading in connection with distinguishing marks. If they are not as marked, the facts should be stated under the Size heading. Use general terms in describing the amount of incorrectly marked containers. The actual certification of size and counts should be made under the Size heading even though the size and count markings on the containers is shown under the Products heading. (64)

The U. S. Standards for Grapefruit and Oranges which apply to all citrus producing states except California and Arizona, contain size requirements based on minimum and maximum diameters for each box size. The terms "uniform" and "fairly uniform" are defined in the standards and should be used in describing uniformity of sizing when the fruit meets the requirements. The term "irregular" should be used in reporting uniformity when it fails to meet the requirements of fairly uniform. When it is necessary to report a size or lot as irregular, the percentage above and below the specified diameters should be shown to justify the use of the term irregular. (65)

The U. S. Standards for California and Arizona Grapefruit and Oranges, and the U. S. Standards for Lemons defines uniformity of sizing in connection with Standard Pack. To meet the standard pack requirements, oranges must be uniform in size while grapefruit and lemons must be fairly uniform in size. Uniform and fairly uniform are defined in the standard. (66)

(67) In describing size under these standards, use the terms "uniform" and "fairly uniform" when the fruit meets these requirements. Report as irregular when they fail to meet these requirements.

(68) Both sets of U. S. Standards for Tangerines specifies a minimum diameter only for each box size and does not define uniformity of sizing. Therefore, in reporting size of tangerines, show that they conform to sizes as marked, or report the percentage of undersize fruit. Thus: (1) "Conforms to sizes as marked"; (2) "100, 120, and 150 sizes conforms to sizes as marked, 176 and 210 sizes, range from 5 to 25%, average approximately 15% undersize."

(69) There are no size requirements in the U. S. Standards for Persian (Tahiti) Limes. Therefore, in reporting uniformity of size the inspector must be guided by the range in size in individual containers. The following terms should be used as a basis for reporting uniformity of sizing for limes:

1. Uniform in size, when the limes are generally of one size.

2. Fairly uniform in size, when 10 percent or less are not more than one standard size below or above the count pack.

3. Irregular in size, when the size varies more than permitted under fairly uniform above.

(70) Bulk Shipments. Request for inspection of citrus fruits in bulk for size, in most cases, will only require the measurements of sufficient fruit to accurately determine the percentage below and above a specified minimum and maximum diameter. When a box size is specified, as for example, 252 size Florida oranges, determine the percentage less than 2-8/16 inches and above 2-14/16 inches in diameter. No statement of box sizes will be made on the certificate covering inspection of bulk fruit, and the size description should be given by stating the diameter range in inches and fractions thereof. In addition, report the percentage under and above the specified minimum and maximum diameters.

(71) Examples:

1. "Fairly uniform size."

2. "56, 64, 70 sizes fairly uniform. Size 80 irregular with from 8 to 20, average 15% under minimum or over maximum diameters."

3. (In bulk)
"Generally 2-8/16 to 2-14/16, mostly 2-9/16 to 2-12/16 inches in diameter. Average 8% under 2-8/16 inches or over 2-14/16 inches in diameter."

GRADE EXPLANATION (72)

A detailed explanation of all the Citrus Standards would be too involved and also be a repetition of the Grade definitions. The definitions in each set of standards may be interpreted without difficulty, provided they are considered individually. The large number of grades in some of the standards make them appear difficult and complicated. In reality any one grade when considered alone is simple enough. A careful study of the requirements of the U. S. No. 1 and U. S. No. 2 grades will eliminate the apparent confusion that exists in connection with these standards.

Separate Standards. Inspectors should keep in mind that there are now separate standards for Florida grapefruit, oranges and tangerines. The former standards which were applicable to Florida fruit are still applicable to Texas, Louisiana, Alabama and Mississippi. (73)

There are also separate standards for grapefruit and oranges which are applicable only to California and Arizona. (74)

The lemon and Persian (Tahiti) lime standards are not restricted to any specific area or state. (75)

Certification of Grade. In the certification of grade of citrus fruits under the various standards, it is not necessary to designate the specific standard that is used as the basis of inspection since the origin of the shipment will indicate the correct standard. For example, Florida oranges shall be inspected on the basis of the U. S. Standards for Florida Oranges but the grade certification need only show the grade. Thus: "U. S. No. 1." (76)

U. S. No. 1 Golden Grade. In the U. S. Standards for Florida Grapefruit and Oranges and the U. S. Standards for grapefruit and oranges which are applicable to all states except Florida, California and Arizona, the U. S. No. 1 Golden grades have the same requirements as U. S. No. 1 except that not more than 30 percent, by count, of the fruit shall have in excess of 1/3 of their surface, in the aggregate, affected with discoloration. On the basis of this requirement, fruit which will grade U. S. No. 1 may also be graded U. S. No. 1 Golden since there is no minimum amount of discoloration required. (77)

Additional Tolerance For Decay En Route or at Destination. All of the citrus standards except lemons provide an additional tolerance for decay en route or at destination. The Lemon Standards permit the additional tolerance for decay but specifies upon arrival in other states than that of their origin, rather than en route or at destination. This additional tolerance for decay is in addition to the total tolerance permitted for defects, including the decay allowed at shipping point. (78)

The additional tolerance plus the shipping point tolerance makes a total of 3 percent for decay. Therefore, a car of U. S. No. 1 oranges at destination may show 10 percent defects, including 1/2 of 1 percent decay, plus an additional 2-1/2 percent decay and still meet the requirements of U. S. No. 1 grade.

(79) Score Sheets. Each inspector should study the grade requirements, tolerances and definitions of damage, serious damage, and very serious damage before attempting to make an inspection. To secure proper application of the tolerances, it is necessary to use a note sheet with sufficient applicable headings to record and segregate those grade and condition factors which have limits specified in the tolerances. The grade in question will determine the number of headings which are necessary. For example, in scoring discoloration against the U. S. No. 1 grade, it is only necessary to have one column for excessive discoloration. To promote uniformity in keeping score sheets, a skeleton score sheet is shown for each set of standards or group of standards which may be used as a basis in preparing applicable score sheets for the specific grade. Following this score sheet is a brief summary of the tolerances and application of tolerances:

(80) SCORE SHEET FOR FLORIDA GRAPEFRUIT AND ORANGES

SIZE SAMPLE	SIZE		GRADE DEFECTS			CONDITION DEFECTS				DISCOLORATION			COLOR	TEX.	SHAPE
	US	OS	VSD	SD	DAM.	DK	VSD	SD	DAM.	OVER 1/10	OVER 1/3	OVER 1/2			

(81) Tolerances: U. S. Standards For Florida Grapefruit and Oranges

(82) (1) U. S. No. 1 Grade.

For Defects - 10%, by count, (other than for discoloration, including not more than 5% for very serious damage and including 1/2% for decay at shipping point. In addition 2-1/2% for decay en route or at destination, or a total of 3% for decay en route or at destination.

For discoloration - 10%, by count, for excessive discoloration. (over 1/3 of surface).

(2) U. S. No. 1 Bright Grade. (83)

For defects - Same as U. S. No. 1 (other than for excessive discoloration).

For discoloration - 10%, by count for excessive discoloration. (over 1/10 of surface).

(3) U. S. No. 1 Golden Grade. (84)

For defects - Same as U. S. No. 1 (other than for discoloration).

For discoloration - Not more than 30%, by count, for excessive discoloration, (over 1/3 of surface) provided that no package shall contain more than 40% for excessive discoloration. In this grade there is no minimum amount of discoloration required.

(4) U. S. No. 1 Bronze Grade. (85)

For defects - Same as U. S. No. 1 (other than for discoloration).

For discoloration - Must have more than 30%, but not more than 75% by count of the fruits with excessive discoloration (over 1/3 of surface), provided, that when predominating discoloration on 75% or more of the fruits is caused by Rust Mite, all fruits may show excessive discoloration. Individual containers may contain 10% less or 10% more than specified.

(5) U. S. No. 1 Russet Grade. (86)

For defects - Same as U. S. No. 1 (other than for discoloration).

For discoloration - must have more than 75%, by count, of the fruits affected with excessive discoloration (over 1/3 of surface). Individual containers may contain 10% less than the specified amount (over 65%).

(6) U. S. No. 2 Grade. (87)

For defects - 10%, by count, (other than for discoloration) including not more than 5% for very serious damage, other than that caused by dryness or mushy condition, and including 1/2% for decay at shipping point. In addition 2-1/2% for decay en route or at destination, or a total of 3% for decay en route or at destination.

For discoloration - 10% by count, for excessive discoloration (over 1/2 of surface).

(88) (7) U. S. No. 2 Bright Grade.

For defects - 10%, by count, (other than for discoloration), including not more than 5% for very serious damage and including 1/2% for decay at shipping point. In addition 2-1/2% for decay en route or at destination, or a total of 3% for decay en route or at destination.

For discoloration - 10%,by count, for excessive discoloration (over 1/10 of surface).

(89) (8) U. S. No. 2 Russet Grade.

For defects - Same as U. S. No. 2 (other than for discoloration).

For discoloration - Must have more than 10% excessive discoloration (over 1/2 of surface). Individual containers may have 10% less than the amount specified (1%).

(90) (9) U. S. No. 3 Grade.

For defects - 15%, by count, (other than for discoloration) including not more than 5%, other than that caused by dryness or mushy condition, and including 1% for decay at shipping point. In addition 2% for decay en route or at destination, or a total of 3% for decay en route or at destination.

For discoloration - No requirements.

(91)

APPLICATION OF TOLERANCES TO INDIVIDUAL PACKAGES
AS APPLIED TO U. S. STANDARDS FOR FLORIDA GRAPEFRUIT AND ORANGES

Limits permitted in individual packages which contain more than 10 lbs.		Limits permitted in individual packages which contain 10 lbs. or less.
For tolerance of 10% or more	For tolerance of less than 10%	All tolerances
1-1/2 times the tolerance	Double the tolerance, except that at least 1 decayed or very seriously damaged fruit permitted in any package.	Not restricted except that not more than 1 fruit seriously damaged by dryness or mushy condition or very seriously damaged by other means permitted in any package and in addition en route or at destination not more than 10% of the packages may have more than 1 decayed fruit.

* *

SCORE SHEET FOR FLORIDA TANGERINES (92)

SIZE	SAMPLE	UNDER SIZE	GRADE DEFECTS			CONDITION DEFECTS				DISCOLORATION				COLOR	TEX.	SHAPE
			VSD	SD	DAM.	DK	VSD	SD	DAM.	OVER 1/10	OVER 1/3	OVER 2/3	SD			

(93) Tolerances: U. S. STANDARDS FLORIDA TANGERINES.

(94) (1) U. S. No. 1 Grade.

For defects - 10%, by count, (other than for discoloration) including not more than 5% for very serious damage, other than that caused by dryness or mushy condition, and including 1/2% for decay at shipping point. In addition 2-1/2% for decay en route or at destination, or a total of 3% for decay en route or at destination.

For discoloration - 10%, by count, for excessive discoloration, (over 1/3 of surface), including not more than 2% for serious damage by unsightly discoloration.

(95) (2) U. S. No. 1 Bronze Grade.

For defects - Same as U. S. No. 1 (other than for dis-
(96) coloration).

Discoloration. In this grade at least 75%, by count,
(97) must show some discoloration, including more than 20% of the fruit with more than 1/3 of the surface affected with Bronze Russeting, provided that no discoloration permitted which exceeds the amount allowed in the U. S. No. 1 grade unless it is caused by thirp, wind scars, or rust mite.

(98) Total tolerance of 10%, by count, which fail to meet the requirements relating to discoloration, including not more than 2% for serious damage by unsightly discoloration.

(99) Under the application of tolerances individual packages may contain as low as 60% with some discoloration and more than 5% which have more than 1/3 their surface affected with bronzed russeting.

(100) In applying the tolerances, the average for the lot must be 65% or more with some discoloration and more than 10% which have more than 1/3 their surface affected with bronze russeting.

(101) (3) U. S. No. 1 Russet Grade.

(102) For defects - Same as U. S. No. 1 (other than for discoloration).

(103) For discoloration - 10%, by count, which fail to meet the requirements relating to discoloration, including not more than 2% for serious damage by unsightly discoloration.

Under the application of tolerances individual packages may contain as low as 60% with some discoloration and more than 5% which have more than 1/3 of their surface affected with discoloration. (104)

In applying the tolerances, the average for the lot must be 65% or more with some discoloration and more than 10% which have more than 1/3 of their surface affected with discoloration. (105)

(4) U. S. No. 2 Grade. (106)

For defects - 10%, by count, (other than for discoloration), including not more than 5% for very serious damage, other than that caused by dryness or mushy condition, and including 1/2% for decay at shipping point. In addition 2-1/2% for decay en route or at destination, or a total of 3% for decay en route or at destination.

For discoloration - 10%, by count, for excessive discoloration (over 2/3 of surface), including not more than 2% for serious damage by unsightly discoloration.

(5) U. S. No. 2 Russet Grade. (107)

For defects - Same as U. S. No. 2 (other than for discoloration). (108)

For discoloration - 10%, by count, which fail to meet the requirements relating to discoloration, including not more than 2% for serious damage by unsightly discoloration. (109)

Under the application of tolerances, individual packages must contain more than 5% in excess of 2/3 of their surface affected with discoloration. (110)

In applying the tolerance, the average for the lot must be more than 10% with discoloration in excess of 2/3 of their surface. (111)

(6) U. S. No. 3 Grade. (112)

For defects - 15%, by count, (other than for discoloration) including not more than 5%, other than that caused by dryness or mushy condition, and including 1% for decay at shipping point. In addition 2% for decay en route or at destination, or a total of 3% for decay en route or at destination.

For discoloration - No requirements.

(113) APPLICATION OF TOLERANCES TO INDIVIDUAL PACKAGES AS APPLIED TO U. S. STANDARDS FOR FLORIDA TANGERINES

Limits permitted in Individual Packages which contain more than 10 lbs.		Limits permitted in Individual Packages which contain 10 lbs. or less.
For tolerance of 10% or more	For tolerance of less than 10%	All tolerances
1-1/2 times the tolerance	Double the tolerance, except that at least 1 decayed or very seriously damaged fruit permitted any package.	Not restricted, except that not more than 1 fruit which is decayed or very seriously damaged permitted in any package.

(114) U. S. Standards For Tangerines Which are Applicable To The Other Citrus States. The grade explanation for the U. S. Standards For Florida Tangerines may be used for this set of standards since the requirements are the same except that there is no U. S. No. 1 Russet grade. The maturity requirements in the Florida Standards are based on the Florida State Law and the term diameter is defined. However, diameters for these standards should be determined on the same basis as for the Florida Standards.

* *

(115) SCORE SHEET FOR ORANGES OTHER THAN FLORIDA, CALIFORNIA AND ARIZONA

SIZE	SAMPLE	SIZE		GRADE DEFECTS			CONDITION DEFECTS				DISCOLORATION			COLOR	TEX.	SHAPE
		US	OS	VSD	SD	DAM.	DK	VSD	SD	DAM.	OVER 1/10	OVER 1/3	OVER 1/2			

Tolerances: U. S. STANDARDS FOR ORANGES OTHER THAN FLORIDA, CALIFORNIA AND ARIZONA. (116)

(1) U. S. No. 1 Grade. (117)

For defects - 10%, by count, (other than for discoloration), including not more than 5% for very serious damage and including 1/2% for decay at shipping point. In addition 2-1/2% for decay en route or at destination, or a total of 3% for decay en route or at destination.

For discoloration - 20%, by count, for excessive discoloration (over 1/3 of surface), including not more than 5% affecting in excess of 1/2 of surface.

(2) U. S. No. 1 Bright Grade. (118)

For defects - Same as U. S. No. 1 (other than for discoloration).

For discoloration - 10%, by count, for excessive discoloration (over 1/10 of surface).

(3) U. S. No. 1 Golden Grade. (119)

For defects - Same as U. S. No. 1 (other than for discoloration).

For discoloration - Not more than 30% of the fruits may have excessive discoloration (over 1/3 of surface) but individual containers may contain up to 40% excessive discoloration. There is no lower limit for excessive discoloration in this grade.

(4) U. S. No. 1 Bronze Grade. (120)

For defects - Same as U. S. No. 1 (other than for discoloration).

For discoloration - Must have more than 30% but not more than 75%, by count, for excessive discoloration (over 1/3 of surface) except that when predominating discoloration on at least 75% of fruits is caused by rust mites all fruits may show excessive discoloration. Individual containers may contain as low as 21% or as high as 85% for excessive discoloration.

(121) (5) U. S. No. 1 Russet Grade.

For defects - Same as U. S. No. 1 (other than for discoloration).

For discoloration - Must average more than 75%, by count, for excessive discoloration (over 1/3 of surface) but individual containers may contain as low as 66% for excessive discoloration.

(122) (6) U. S. No. 2 Grade.

For defects - 10%, by count, (other than for discoloration) including not more than 5% for very serious damage, other than that caused by dryness or mushy condition, and including 1/2% for decay at shipping point. In addition 2-1/2% for decay en route or at destination or a total of 3% for decay en route or at destination.

For Discoloration - 10%, by count, for excessive discoloration (over 1/2 of surface).

(123) (7) U. S. No. 2 Bright Grade.

For defects - Same as U. S. No. 2 (other than for discoloration).

For discoloration - 10%, by count, for excessive discoloration (over 1/10 of surface).

(124) (8) U. S. No. 2 Russet Grade.

For defects - Same as U. S. No. 2 (other than for discoloration).

For discoloration - Must average more than 10% for excessive discoloration (over 1/2 of surface) but individual containers may contain as low as 1% excessive discoloration.

(125) (9) U. S. No. 3 Grade.

For defects - 15%, by count, (other than for discoloration) including not more than 5%, other than that caused by dryness or mushy condition, and including 1% for decay at shipping point. In addition 2% for decay en route or at destination or a total of 3% for decay en route or at destination.

For discoloration - No requirements.

(10) U. S. Combination Grade. (126)

For defects and discoloration - same as U. S. No. 2 but lot must contain at least 50% which are fairly Well Colored and of U. S. No. 1 quality.

Individual containers may contain as low as 40% U. S. No. 1 quality or 10% less than the specified percentage of U. S. No. 1 quality when a higher percentage of U. S. No. 1 quality is specified. (127)

(11) U. S. Combination Russet Grade. (128)

For defects and discoloration - Same as U. S. Combination except that at least 80%, by count, of the fruits must have in excess of 1/3 of their surface affected with discoloration. Individual containers may contain as low as 70% of the fruits which shows in excess of 1/3 of their surface affected with discoloration.

APPLICATION OF TOLERANCES TO INDIVIDUAL PACKAGES (129)
AS APPLIED TO U. S. STANDARDS FOR ORANGES
OTHER THAN FLORIDA, CALIFORNIA AND ARIZONA

Limits permitted in individual packages which contain more than 25 lbs.		Limits permitted in individual packages which contain 25 lbs. or less.
For tolerances of 10% or more	For tolerances of less than 10%	All tolerances
1-1/2 times the tolerance	Double the tolerance, except that at least 1 decayed or very seriously damaged fruit permitted.	Not restricted, except that not more than 1 fruit seriously damaged by dryness or mushy condition or very seriously damaged by other means permitted. In addition, en route or at destination not more than 10% of packages may have more than 1 decayed fruit.

(130) SCORE SHEET FOR GRAPEFRUIT OTHER THAN FLORIDA, CALIFORNIA AND ARIZONA

SIZE	SAMPLE	SIZE		GRADE DEFECTS			CONDITION DEFECTS				DISCOLORATION				COLOR	TEX.	SHAPE
		US	OS	VSD	SD	DAM.	DK	VSD	SD	DAM.	OVER 1/10	OVER 1/3	OVER 1/2	OVER 2/3			

(131) Tolerances: STANDARDS FOR GRAPEFRUIT OTHER THAN FLORIDA, CALIFORNIA AND ARIZONA.

(132) (1) U. S. No. 1 Grade.

For defects - 10%, by count, (other than for discoloration) including not more than 5% for very serious damage and including 1/2% for decay at shipping point. In addition 2-1/2% for decay en route or at destination, or a total of 3% for decay en route or at destination.

For discoloration - 10%, by count, for excessive discoloration (over 1/2 of surface).

(133) (2) U. S. No. 1 Bright Grade.

For defects - Same as U. S. No. 1 (other than for discoloration).

For discoloration - 10%, by count, for excessive discoloration (over 1/10 of surface).

(134) (3) U. S. No. 1 Golden Grade.

For defects - Same as U. S. No. 1 (other than for discoloration).

For discoloration - Not more than 30% of the fruits may have excessive discoloration (over 1/3 of surface) but individual containers may contain up to 40% excessive discoloration. There is no lower limit for excessive discoloration. A lot may be graded U. S. No. 1 Golden even though no container shows in excess of 10% excessive discoloration.

(4) U. S. No. 1 Bronze Grade. (135)

For defects - Same as U. S. No. 1 (other than for discoloration).

For discoloration - Must have more than 30%, by count, but not more than 75% for excessive discoloration (over 1/3 of surface), except that when predominating discoloration on at least 75% of fruits is caused by rust mite all fruits may show excessive discoloration. Individual containers may contain as low as 21% or as high as 85% for excessive discoloration.

(5) U. S. No. 1 Russet Grade. (136)

For defects - Same as U. S. No. 1 (other than for discoloration).

For discoloration - Must average more than 75%, by count, for excessive discoloration (over 1/3 of surface) but individual containers may contain as low as 66% for excessive discoloration.

(6) U. S. No. 2 Grade. (137)

For defects - 10%, by count (other than for discoloration) including not more than 5% for very serious damage, other than that caused by dryness or mushy condition, and including 1/2% for decay at shipping point. In addition 2-1/2% for decay en route or at destination, or a total of 3% for decay en route or at destination.

For discoloration - 10%, by count, for excessive discoloration (over 2/3 of surface).

(7) U. S. No. 2 Bright. (138)

For defects - Same as U. S. No. 2 (other than for discoloration).

For discoloration - 10%, by count, for excessive discoloration (over 1/10 of surface).

(139) (8) U. S. No. 2 Russet Grade.

For defects - Same as U. S. No. 2 (other than for discoloration).

For discoloration - Must average more than 10% for excessive discoloration (over 2/3 of surface) but individual containers may contain as low as 1% for excessive discoloration.

(140) (9) U. S. Combination Grade.

For defects and discoloration - Same as U. S. No. 2 except that at least 40% by count, of the fruits must be of U. S. No. 1 quality. Individual containers may contain as low as 30% U. S. No. 1 quality or 10% less than the specified percentage of U. S. No. 1 quality when a higher percentage of U. S. No. 1 quality is specified.

(141) (10) U. S. Combination Russet Grade.

For defects and discoloration - Same as U. S. Combination except that at least 80%, by count, of the fruits must have in excess of 1/3 of their surface affected with discoloration. Individual containers may contain as low as 70% of the fruits which show in excess of 1/3 of their surface affected with discoloration.

(142) APPLICATION OF TOLERANCES TO INDIVIDUAL PACKAGES AS APPLIED TO U. S. STANDARDS FOR GRAPEFRUIT OTHER THAN FLORIDA, CALIFORNIA AND ARIZONA

Limits Permitted In Individual Packages Which Contain More Than 25 lbs.		Limits Permitted In Individual Packages Which Contain 25 lbs. or less
For tolerances of 10% or more	For tolerances of less than 10%	All tolerances
1-1/2 times the tolerance	Double the tolerance, except that at least 1 decayed or very seriously damaged fruit permitted.	Not restricted, except that not more than 1 fruit seriously damaged by dryness or mushy condition or very seriously damaged by other means permitted. In addition, en route or at destination not more than 10% of packages may have more than 1 decayed fruit.

SCORE SHEET FOR CALIFORNIA AND ARIZONA GRAPEFRUIT AND ORANGES (143)

SIZE	SAMPLE	SIZE		GRADE DEFECTS			UNDER COLOR	CONDITION DEFECTS				TEX.	COLOR	SHAPE
		US	OS	VSD	SD	DAM.		DK	VSD	SD	DAM.			

Tolerances: U. S. STANDARDS FOR CALIFORNIA AND ARIZONA GRAPEFRUIT AND ORANGES. (144)

(1) U. S. No. 1, U. S. No. 2 and U. S. No. 3 Grades. (145)

For defects - 10%, by count, (other than for color) including 1/2% for decay at shipping point. In addition 2-1/2% for decay en route or at destination, or a total of 3% for decay en route or at destination.

For color - 10%, by count, for off color.

(2) U. S. Combination Grade. (146)

For defects and color - Same as U. S. No. 2 except that at least 40%, by count, of the fruits must be of U. S. No. 1 quality; provided that the total tolerance of 3% for decay en route or at destination may be used to reduce the percentage required if they meet the other requirements of the U. S. No. 1 grade.

Individual containers may contain as low as 30% U. S. No. 1 quality or 10% less than the percentage specified when a higher percentage is specified. (148)

(149) APPLICATION OF TOLERANCES TO INDIVIDUAL PACKAGES AS APPLIED TO U. S. STANDARDS FOR CALIFORNIA AND ARIZONA GRAPEFRUIT AND ORANGES

Limits permitted in individual packages which contain more than 25 lbs. for grapefruit, or more than 10 lbs. for oranges		Limits permitted in individual packages which contain 25 lbs. or less for grapefruit, or 10 lbs. or less for oranges.
For tolerance of 10% or more	For tolerance of less than 10%	All tolerances
1-1/2 times the tolerance	Double the tolerance, except that at least 1 decayed or very seriously damaged fruit permitted.	Not restricted, except that not more than 1 fruit which is seriously damaged by dryness or mushy condition or very seriously damaged by other means permitted. In addition, en route or at destination not more than 10% of packages may have more than 1 decayed fruit.

* *

(150) SCORE SHEET FOR LEMONS

SIZE	SAMPLE	SIZE		GRADE DEFECTS					UNDER COLOR	CONDITION DEFECTS				TEX.	COLOR	SHAPE
		US	OS	INT. ALT. DEV. AND INT. DECL.	UNHEALED SKIN BREAKS AND GROWTH CRACKS	VSD	SD	DAM.		DK	VSD	SD	DAM.			

Tolerances: U. S. STANDARDS FOR LEMONS. (151)

(1) U. S. No. 1 Grade. (152)

For defects - 10%, by count, (other than for color), including not more than 5% for internal evidence of Alternaria development, internal decline, decay, unhealed broken skins, growth cracks and other defects causing serious damage, provided that not more than 1/2% for decay in State of origin. In addition 2-1/2% for decay upon arrival in other states or a total of 3% for decay upon arrival in other states than that of their origin.

For color - 10%, by count, for off-color.

(2) U. S. No. 2 Grade. (153)

For defects - 10%, by count (other than color) including not more than 5% for internal evidence of Alternaria development, internal decline and decay, provided that not more than 1% for decay in State of origin. In addition 2% for decay upon arrival in other states, or a total of 3% for decay upon arrival in other states than that of their origin.

For color - 10%, by count, for off-color.

(3) U. S. Combination Grade. (154)

For defects and color - Same as U. S. No. 2, except (155) that at least 40%, by count, of the fruits must be of U. S. No. 1 quality, provided the total tolerance of 3% for decay upon arrival in other states than origin may be used to reduce the percentage required if they meet the other requirements of the U. S. No. 1 grade.

Individual containers may contain as low as 30% (156) U. S. No. 1 quality, or 10% less than the percentage specified when a higher percentage is specified.

(4) U. S. No. 3 Grade. (157)

For defects - 10%, by count, (other than for color) including not more than 1% for decay in state of origin. In addition 2% for decay upon arrival in other states, or a total of 3% for decay upon arrival in other states than that of their origin.

For color - 10%, by count, for off-color.

(158) APPLICATION OF TOLERANCES TO INDIVIDUAL PACKAGES AS APPLIED TO U. S. STANDARDS FOR LEMONS

Limits Permitted in Individual Packages Which Contain More Than 15 Specimens		Limits Permitted In Individual Packages Which Contain 15 Specimens or Less	
For tolerance of 10% or more	For tolerance of less than 10%	For tolerance of 10% or more	For tolerance of less than 10%
1-1/2 times the tolerances	Double the tolerance, except that 1 fruit permitted in any package.	Double the tolerance.	Double the tolerance, except that 1 fruit permitted in any package.

* *

(159) SCORE SHEET FOR PERSIAN (TAHITI) LIMES

SIZE	SAMPLE	GRADE DEFECTS			UNDER COLOR	CONDITION DEFECTS				TEX.	COLOR	SHAPE
		SD	DAM.	UNHEALED BROKEN SKINS		DK	STYLAR END BREAK D.	SD	DAM.			

(160) Tolerances: U. S. STANDARDS FOR PERSIAN (TAHITI) LIMES.

(161) (1) U. S. No. 1 Grade.

For defects - 10%, by count, (other than for color) including not more than 5% for decay, stylar end breakdown, unhealed skin breaks or other defects causing serious damage, provided that not more than 1/2% for decay at shipping point. In addition 2-1/2% for decay en route or at destination, or a total of 3% for decay en route or at destination.

For color - 10%, by count, for off-color.

(2) U. S. No. 2 Grade. (162)

For defects - 10%, by count, (other than for color) including not more than 5% for decay, stylar end breakdown and unhealed skin breaks, provided that not more than 1/2% for decay at shipping point. In addition 2-1/2% for decay en route or at destination, or a total of 3% for decay en route or at destination.

For color - 10%, by count, for off-color.

(3) U. S. Combination Grade. (163)

For defects and color - Same as U. S. No. 2 grade, (164) except that at least 75% by count, of the fruits must be of U. S. No. 1 quality.

Individual containers may contain as low as 65% (165) U. S. No. 1 quality, provided the average is 75% or more.

APPLICATION OF TOLERANCES TO INDIVIDUAL PACKAGES AS APPLIED TO U. S. STANDARDS FOR PERSIAN LIMES (166)

Limits Permitted In Individual Packages Which Contain More Than 15 Specimens		Limits Permitted In Individual Packages Which Contain 15 Specimens or Less	
For tolerances of 10% or more	For tolerances of less than 10%	For tolerances of 10% or more	For tolerances of less than 10%
1-1/2 times the tolerance	Double the tolerance, except that 1 fruit permitted in any package.	Double the tolerance	Double the tolerance, except that 1 fruit permitted in any package.

(167) QUALITY

See D. M. Handbook - Part II (Same heading).

(168) Citrus fruits, like other commodities, may show wide variations in quality in different lots which are packed to meet the same grade requirements. A detailed description of the quality factors should be reported in accordance with the specific grade requirements. The various standards specify the minimum requirements necessary to meet the specific grade in question. Certain quality factors which are required in one set of standards may not be mentioned in another set of standards. For example, juice volume is a requirement in the U. S. Standards for Lemons but it is not a requirement in the grapefruit standards. Discoloration is not a factor in California and Arizona oranges and grapefruit except discoloration caused by smudge, but it is a factor in the standards which are applicable to the other states. Therefore, the specific standard will determine the factors which should be reported. The principal quality factors for citrus fruits are listed below but those that should be reported will be determined on the basis of the particular standard:

(1) Maturity (only on request.
(2) Cleanness.
(3) Shape.
(4) Color.
(5) Texture.
(6) Thickness of skin.
(7) Juice volume (Limes and Lemons).
(8) Internal Quality (only on request).
(9) Count of Seeds and Color of Flesh (only on request)
(10) Defects.

(169) (1) Maturity of tangerines, oranges and grapefruit can be determined only by analysis of the juices and the inspector is not safe in reporting maturity without a test made in conformity with standards specified in the regulations of the Maturity Law of the State of origin.

(170) As a general policy, no mention should be made on the certificate with reference to maturity unless there is a specific request for its determination in which case proper samples should be taken for analysis. Where the office is not equipped to make this analysis, the sample may be taken or shipped to the nearest processed foods laboratory for analysis.

(171) Oranges and grapefruit after reaching a certain state of maturity are frequently colored by placing the fruit in a closed room and releasing ethylene gas. Oranges may also be colored by passing them through a warm solution to which a vegetable dye has been added.

Under the Federal Food, Drug and Cosmetic Act, artificial color may be used on fruit that meets the state maturity standards, provided that each individual fruit is stamped or marked to show the addition of color. (172)

Lemons for long distance shipment are picked green or midway between green and tree ripe, and always artifically cured or ripened. Tree ripened lemons will not carry and are usually sold locally. (173)

Each State which ships citrus fruits has set up its own maturity standards. If the inspector desires to know the details of these standards for maturity, he should consult the proper State laws. (174)

An inspector cannot judge maturity from color alone. The Parson Brown variety is often mature while still green in color. Navels often become well colored on the tree although the fruit is not mature. Valencias which are mature often have a green color late in the season. Furthermore, fruit may be artifically colored and be immature. If the inspector should report fruit as mature solely on the basis of color, he might be furnishing a Government certificate of maturity for an illegal shipment. (175)

(2) Cleanness. Will seldom be a factor in the inspection of citrus fruits as they are generally washed before packing. Normally, all citrus fruits will be reported as clean on the certificate. (176)

(3) Shape. The normal shape for the variety must be considered in determining the correct term or terms in describing shape. Certain varieties are characteristically flat while other varieties tend to be oblong in shape. For example, the King orange and Marsh Seedless grapefruit are usually flat in shape while the Valencia orange tends to be oblong. A fruit of a given shape may be well formed for one variety and only fairly well formed for another variety. (177)

Report shapes in conformity with the various shape terms as defined in the standards. The following terms should be used in describing shapes: (a) Well formed, (b) fairly well formed, (c) slightly misshapen, (d) misshapen, (e) badly deformed, and (f) seriously deformed. (178)

(4) Color. In reporting color, the inspector should bear in mind that true color refers to the degree of yellow or orange color and not to discoloration caused by rust mite, Melanose, and other blemishes. A lot may be classified as russets, and still be certified as well colored. In other words, well colored in russets would be the same as well colored in brights. (179)

Color should be judged in normal daylight. Fruit appears greener in color under artificial light or in a poorly lighted car. When there is any question of doubt regarding color, the fruit should be judged under daylight. (180)

(181) Color of all citrus fruits should be reported under the Quality heading, except limes which should be reported under the Condition heading even though they are of a solid green color. This is advisable to avoid reporting green color under the Quality heading, and turning and yellow color under the Condition heading which would be confusing.

(182) In describing the color of citrus fruits, various color terms as defined in the standards should be used. The definitions of the color terms are definite but a discussion of the term "fairly well colored" in the U. S. Standards for Florida Grapefruit may be desirable in order to avoid the possibility of any misunderstanding. "Fairly well colored" means that except for 1 inch, in the aggregate, of green color, the yellow color predominates over the green color on that part of the fruit which is not discolored. The 1 inch (area of a circle 1 inch in diameter) specified for green color may be any shade of green color from light green to dark green. On the remaining area of the fruit, which is not discolored, the yellow color must predominate over the green color. For example, a fruit with the area of a circle 1 inch in diameter of green color shall not have any other area in which the green color predominates.

(183) The term "fairly well colored" in the California and Arizona orange standards means that the yellow or orange color predominates on the fruit. For example, an orange which shows 45% of the surface with green color and 55% of the surface with yellow or orange color would meet the requirements of "fairly well colored."

(184) In the California and Arizona grapefruit standards, the term "fairly well colored" means that the yellow color predominates on the fruit and that the fruit is free from distinctly green streaks and distinctly green blotches. Under this definition fruit with distinctly green streaks, or distinctly green blotches will not meet the requirements of fairly well colored.

(185) Color Added Fruit. Color added processes are not sufficiently standardized to warrant any mention on the certificate of the degree of color attained. Therefore, no attempt should be made to describe color more than is done with uncolored fruit, but it should be mentioned under "Products Inspected" that the fruit is stamped "Color Added."

(186) No attempt should be made to certify the exact percentage of fruit with the color added treatment since it is impossible in all cases to determine accurately whether all fruit in a lot have been color added. Fruit with stem buttons missing at the time of the color added treatment or those with stem buttons which remain attached after the treatment can be detected by a light brown or orange color of the stem scar or stem button caused by the dye. However, if the stem button becomes detached after the treatment it is difficult to determine whether the fruit is color added. Request for exact percentage of color added fruit should be declined but it will be satisfactory to certify color added treatment by the use of general terms. Thus: "Most stem buttons and stem scars light brown to orange color which indicates 'Color Added Treatment.'"

(5) Texture refers to the smoothness or roughness of the skin which varies considerably with the size of the fruit and variety. Large sizes are normally rougher than small sizes for the same variety. Likewise, Valencias and Navels are rougher than the Pineapple variety. Therefore, in reporting texture, the size of fruit and variety must be considered in determining the proper descriptive term. Texture should be reported on all citrus fruits even though there are no minimum requirements in the tangerine standards. The other standards specify various texture terms which are defined. In describing texture, the following terms should be used on the basis of the specific standard in question: (a) Smooth, (b) fairly smooth, (c) slightly rough, (d) rough, (e) excessively rough and (f) seriously lumpy. (187)

Do not acquire the habit of associating the term "fairly smooth" with the U. S. No. 1 grade in all standards. The U. S. No. 1 grade in the lemon standards specifies that the fruit shall not be abnormally rough. (188)

Inspectors should study and refer frequently to the models on texture. (189)

(6) Thickness of skin is closely associated with texture, and in most cases it is not necessary to make any mention of this factor on the certificate. This is especially true for the standards in which the thickness of skin is included in the definition of the texture term, as in the U. S. Standards for Florida Oranges. In most cases, the texture and thickness of the skin are comparable, such as fairly smooth texture and fairly thin skin. However, when the standards contain a minimum thickness of skin requirement or there is a material difference in the texture and thickness of the skin both should be reported. For example, the thickness of skin should always be reported on California and Arizona grapefruit since it is a requirement in the U. S. Fancy and U. S. No. 1 grades. (190)

(7) Juice Content of Lemons and Limes. The juice content of both lemons and limes is based on volume. In determining the percentage of juice by volume, the following equipment is necessary: (191)

Galvanized iron tank with overflow spout.
Galvanized iron cage with hinged lid and cover.
Graduated glass cylinder, 1000 cc.
Supply of cheesecloth.
Juice extractor.

(A) Sampling Procedure in Determining Juice Content. Use 1 dozen or more fruits when possible. Of the larger size fruits, a sufficient number should be taken to fill the wire cage. As the juice content is intended to be the average for the lot (consisting of all sizes), the samples shall be taken at random by sizes. (192)

(193) Lemons or limes should be tested as soon as possible after the sample has been secured because of their susceptibility to rapid drying of the rind which will cause a change in the percentage of juice content.

(194) (B) Measurement of Volume of Lemons.

1. Stand tank on level surface convenient to water supply and a sink.

2. Fill tank with water to overflow level.

3. When overflow drip has practically ceased, place graduated cylinder in position under overflow spout, lower empty cage to bottom of tank, measure the volume in cubic centimeters (cc) by the water displaced. (This need not be done for each determination if this figure is recorded. It should be checked occasionally).

4. Refill tank (cage removed) to overflow level.

5. Place fruit sample in cage and lower carefully into water receiving overflow into the empty graduate. Stop the spout with the thumb while the first 1000 cc. quantity of displaced water is emptied from the graduate and proceed.

6. Subtract cage volume (3) from total volume, (5) to obtain volume of fruit sample.

(195) (C) Extraction of Lemon Juice.

1. Cut fruits in half.

2. Ream on either a hand reamer or one of the motor-driven types.

3. Strain juice through double thickness of dry cheesecloth and squeeze the pulp as dry as possible.

4. Measure volume of juice in the 1000 cc graduate.

(D) Calculation of Percentage of Lemon Juice. (196)

$$\frac{\text{Volume of Juice} \times 100}{\text{Volume of fruit.}} = \text{percentage juice by volume.}$$

Certification of Juice Content of Lemons. It is not necessary (197) to make the juice content determination unless specifically requested by the applicant or the inspector believes there is doubt regarding whether the lot meets the minimum juice content required in the grades.

Remarks and Grade Statement Regarding Juice. When the juice (198) content has not been determined, the following statement should be made under "Remarks": "Per cent of juice content not determined, but lemons (or limes) apparently meet the juice requirements of the grade."

The inspector should not attempt to show the percent of juice on the (199) certificate when the fruit meets the minimum juice requirements of the grade. Certify the grade without any reference to the juice content. Thus: "U. S. No. 1." However, if per cent of juice is below the minimum requirements of the grade, the grade certification should show this fact. Thus: "Fails to grade U. S. No. 1 account juice content is less than _____% by volume."

(8) Internal Quality of Common Sweet Oranges. The U. S. Standards (200) For Florida Oranges and the U. S. Standards For Oranges which are applicable to other states than Florida, California and Arizona contain Standards For Internal Quality of Common Sweet Oranges. In these standards, the requirements are based on the volume of juice per standard box, percentage of soluble solids, acid and ratio between acid and soluble solids.

Applications for inspection for internal quality of common sweet (201) oranges may be for (1) juice content only, (2) complete analysis including juice content, soluble solids, acid and ratio.

1. When determination of juice content only is desired, the fresh (202) fruit and vegetable inspector should secure samples and make the determinations according to the following instructions. Offices which are not equipped to extract the juice should send the samples to the nearest Fresh Fruit and Vegetable Inspection office which is so equipped.

2. When complete analysis is desired, the fresh fruit and vegetable (203) inspectors located in markets where there is a processed products laboratory should secure the samples, determine the juice content and take or send samples of the juice for the different sizes to the processed products laboratory where determination of soluble solids, acid, and ratio will be made.

(204) When determination of the soluble solids, acid, and ratio is desired in markets where there is no processed products laboratory, a sample of the fruit or juice should be secured and sent to the nearest Fresh Products inspection office in the market where a processed products laboratory is located, provided it will arrive at destination within a reasonable time. If the sample cannot be handled promptly, the inspector should contact his supervisor immediately for instructions. The supervisor may determine to expedite the inspection by requesting that a processed product inspector proceed to the market with proper equipment to make the analysis.

(205) In all instances, samples of juice or fruit forwarded to processed products inspectors should be accompanied by a certificate of sampling, (FDA-546). The processed products inspector after analysis shall report the results immediately, in person, by phone or wire, to the Fresh Fruit and Vegetable Inspector from whom he received the sample. A written statement, identifying the lot and making reference to the form FDA-546 should follow by mail. All reports of analysis, should be filed with the other notes covering the inspection.

(206) In selecting each orange, be sure that it is representative of the size of the fruit in the package.

(207) If the applicant for inspection is unwilling or unable to make the load readily accessible for sampling, the request for inspection should be declined.

(208) Inspection Certificates and Fees. All inspections for internal quality whether for juice contents alone or for complete internal quality will be handled separately from regular grade inspections such as U. S. No. 1 and separate certificates will be issued and separate fees assessed. The inspector who draws the sample shall issue the certificate.

(209) When inspection is requested for both external and internal quality grades, the lot fee shall be assessed for external grade and the fee for internal quality determination, regardless of the number of sizes tested, shall be on the hourly basis.

(210) When appeal inspections are made, the usual policy should be followed, i.e., when the original is sustained charge double the regular fee; when reversed, no fee is charged.

(211) Sampling. Approximately 10% of the packages in any size and grade of fruit should be sampled. All tests must be made by sizes. Studies of scientific data indicate that for a given lot, if the smallest and largest sizes meet the internal requirements, the sizes in between will also meet the requirements. However, there is always the possibility

of fruit of different sizes being assembled from different growers' lots. Accordingly, it will be necessary for market inspectors to secure samples from each size of fruit in the car load.

The following table indicates the approximate number of oranges to be selected from any given size: (212)

No. of packages in lot	No. of boxes from which samples must be secured	No. of fruits to be taken from each package	Total No. of fruits in sample
500	30	1	30
400	30	1	30
300	30	1	30
200	30	1	30
100	10	3	30
50	6	5	30
25	6	5	30

Juice Extraction and Determination of Volume. If the office where the sample is drawn has the proper equipment, the inspector should extract the juice and determine the volume according to the following procedure: (213)

The following equipment is necessary: (1) A juice extractor with a reamer burr approximately 3 inches in diameter at the base and which is revolved by hand cranking or motor at a speed not exceeding 400 R.P.M. (2) a graduated glass cylinder approximately 1-7/8 inches in diameter by 14 inches in height. (3) Pieces of cheese cloth for straining juice. (A gauze made by Johnson & Johnson, New Brunswick, N. J. Type 1 (44x36) uncut bandage roll is suitable and may be secured in most localities). (214)

Extraction. At least 30 fruit should be cut in half, cutting across the stem to blossom axis. Each half of the fruit should be pressed by hand against the reamer burr until all the juice and juice cells have been removed. The juice should be strained through a double thickness of cheese cloth. The cheese cloth containing the juice cells, pulp, and seeds from the samples should be squeezed by hand until the juice is removed but should not be kneaded or twisted or pressed to the point of forcing juice cells, pulp, seeds, or slime through the cloth. The cloth may be used several times provided it is thoroughly washed and wrung out each time it is used. (215)

Determination of Volume. After securing the juice from at least 30 oranges, the volume of juice per standard packed box of 1-3/5 bushels is determined as follows: (216)

(217) The juice from all the oranges used should be measured in the graduated cylinder. Juice should be measured only when at normal room temperatures. A few degrees will not cause any material difference but extreme temperatures may be significant. For example, a sample at about 40 degrees F. due to cool weather, or which was held in a refrigerator overnight, might show a material difference from juice tested at room temperatures.

(218) There are 3784.96 cubic centimeters in one gallon at 20 degrees C. or 68 degrees F.

(219) Assume that a 200 size lot is being tested and that 30 oranges yield 2838.72 cc of juice. It is obvious that the orange would yield one-thirtieth of 2838.72 cc or 94.62 cc. 200 oranges would yield 200 x 94.62 cc or 18,924 cc. 18,924 cc is converted into gallons by dividing this number by 3784.96 (the number of cc in 1 gallon) and the yield is found to be 5 gallons of juice for the 200 size.

(220) The following table shows the number of cubic centimeters of juice in 30 oranges which will be equivalent to the number of gallons of juice required in a standard packed box of 1-3/5 bushels:

(221)

Fruit Size	Number of Fruits	Number of CC to equal 4 gallons per box	Number of CC to equal 4-1/2 gallons per box	Number of CC to equal 5 gallons per box
96	30	4731	5322	5914
126	30	3605	4055	4506
150	30	3028	3406	3785
176	30	2581	2903	3226
200	30	2271	2555	2839
216	30	2103	2365	2628
250	30	1817	2044	2271
288	30	1577	1774	1971
324	30	1402	1577	1752

(222) Where an office is not equipped to extract juice, the sample should be mailed to the nearest Fresh Fruit and Vegetable Inspection office which is so equipped.

About 1 pint of the juice which has been extracted for volume determination should be taken to the laboratory of Processed Foods inspection for determination of the Soluble Solids - Acid ratio. This will be done according to the A.O.A.C. methods under which the ratio of soluble solids to acid is determined by dividing the percent of soluble solids by the percent of acid. This gives the number of parts of soluble solids to each part anhydrous citric acid. Whenever solids or acids are mentioned on the certificate, they should be referred to as "soluble solids" or "anhydrous citric acid." (223)

If there is no Processed Foods Laboratory in the market where the volume of juice was determined, the sample of juice should be mailed to the nearest laboratory together with a F.D.A. 546. (224)

NOTE SHEET: Sample should be recorded on the rough note sheet as follows: (225)

SIZE	SAMPLE (NUMBER OF FRUITS)	NUMBER OF CC IN SAMPLE	EQUIVALENT GALLONS PER BOX	SOLUBLE SOLIDS CORRECTED FOR TEMP-ERATURE	ANHYDROUS CITRIC ACID	RATIO
288	30	1971.30	5.0	9.7	.95	10.21-1
200	30	2554.80	4.5	9.6	1.03	9.32-1
150	30	3027.90	4.0	9.3	.87	10.69-1

("288 and 200 - Size meets all requirements of U. S. Grade A Juice but 150-size fails to meet the requirement of U. S. Grade A Juice account insufficient volume of juice.")

Important Grade Factors of Internal Quality. (226)

GRADE AA: (227)

Minimum volume of juice - 5 gallons per standard packed box of 1-3/5 bushels.

Minimum average soluble solids - 10 percent.

Minimum average anhydrous citric acid - 1/2 of 1 percent.

Minimum ratios according to Table 1 in Standards.

GRADE A: (228)

Minimum volume of juice - 4-1/2 gallons of juice per standard packed box of 1-3/5 bushels.

Minimum average soluble solids - 9 percent.

Minimum average anhydrous citric acid - 1/2 of 1 percent.

Minimum ratios according to Table 1 in Standards.

(229) Examples of Quality and Grade Statements:

(1) When oranges are inspected on the basis of internal quality.

Quality: All sizes meet Grade A Juice requirements for soluble solids and anhydrous citric acid. 176, 200, and 216 sizes contain 4-1/2 gallons of juice or more per standard packed box of 1-3/5 bushels. 150 size contains only 3.7 gallons of juice per standard box of 1-3/4 bushels.

Grade: 176, 200 and 216 sizes - U. S. Grade A Juice.150 size - Fails to meet Grade A Juice account insufficient volume of juice.

Remarks: Certificate restricted to internal quality. Analysis for soluble solids - anhydrous citric acid ratio of the juice was made by Processed Foods Inspector _____.

(2) Lot fails Grade A Juice Account too low ratio.

Quality: 176, 200 and 216 sizes meet all requirements for Grade A Juice. 250 size - contains 9.5% average soluble solids and 1.05% anhydrous citric acid, having a 9.05 to 1 ratio; meets volume of juice requirements for Grade A Juice.

Grade: 176, 200 and 216 sizes - Grade A Juice. 250 size - Fails to meet Grade A Juice account too low ratio of soluble solids to acid.

Remarks: Analysis for soluble solids - anhydrous citric acid ratio of juice was made by Processed Food Inspector _____.

(3) Inspection for juice content only.

Quality: Sizes 176, 200 and 216 sizes contain 4-1/2 gallons or more per standard packed box of 1-3/5 bushels. 150 size contains only 3.7 gallons of juice per standard packed box of 1-3/5 bushels.

Grade: Sizes 176, 200 and 216 meet volume of juice requirements of U. S. Grade A juice. Size 150 fails to meet volume of juice requirement of U. S. Grade A juice account insufficient volume.

Remarks: Inspection and certificate restricted to volume of juice only at request of applicant.

(4) Appeal inspection of lot previously certified as U. S. Grade AA juice.

Quality: 176, and 200 sizes meet all requirements for Grade AA juice. 150 size contains average of 10.7% soluble solids and .8% anhydrous citric acid but contains only 4.5 gallons of juice per standard packed box of 1-3/5 bushels. 216 size contains average of 9.6% soluble solids and .7% anhydrous citric acid. Meets volume of juice requirements of Grade AA juice.

Grade: 176 and 200 sizes - Grade AA juice. 150 size fails to meet requirements of Grade AA juice account insufficient volume of juice. Size 216 fails to meet requirements of Grade AA juice account insufficient soluble solids.

Remarks: Analysis for soluble solids - anhydrous citric acid ratio of the juice was made by Processed Foods Inspector _____. This certificate covers an appeal inspection on the above-mentioned shipment which was previously inspected and reported on joint Federal and State of Florida certificate which is reversed as to grade on 150 and 216 sizes.

(230) Statement Under Remarks. The following statement should be made under "Remarks" when a Processed Foods Inspector has made the analysis for soluble solids-anhydrous citric acid ratio:

"Analysis for soluble solids-anhydrous citric acid ratio of the juice was made by Processed Foods Inspector _____."

(231) Number of Seeds and Color of Flesh. If variety is in question, and the applicant requests it, the inspector may certify the range and a "mostly" statement for count of seeds per fruit, and/or the color of flesh, but should not attempt to certify the variety in such cases. To determine the number of seeds and color of flesh, cut a composite sample of 5 to 10 fruit from each sample container and report the findings under the quality heading. The number of seeds and color of flesh are not grade factors, and are never justifications for reversals.

(232) As previously instructed, inspectors should not certify variety unless the variety can be definitely identified. There are a few varieties of citrus in which the number of seeds and color of flesh indicates the variety, but such indications are frequently not reliable. For example, some authorities state that a Marsh seedless grapefruit may have up to 15 seeds per fruit. It is also true that some pink or red flesh varieties of citrus may show a high percentage of fruit with little color during the fall season, and while most of the fruit will show colored flesh during the winter season, the color in some instances will fade in the late spring to an extent that some of the colored flesh varieties will have only a cloudy or milky appearance, and show no definite pink color.

(233) Examples:

(1) "Range from 3 to 47, average approximately 15 seeds per fruit. Flesh mostly faded red, some red color."

Remarks: "No. of seeds and color of flesh reported at request of applicant."

(2) "Most fruits contain less than 5 seeds, many contain 25 to 50 seeds.

Remarks: "Number of seeds reported at request of applicant."

(234) (9) Defects. The term "grade defects" should be used to report all blemishes that are serious enough to affect the grade in question. Minor blemishes which are of no commercial importance should be ignored, except when the applicant specifically requests that they be reported and in that event should be followed by the statement, "Not affecting grade." Only

such defects as are excluded from the grade in question should be mentioned. For instance, in scoring U. S. No. 2 grade oranges, practically all specimens may show defects of the higher grade, but these should not be reported as their presence is the cause of the stock being in the lower grade.

The various defects, other than for discoloration, should be grouped in one percentage, naming, not to exceed three of the most important, in the order of their importance, provided that when the lot is out of grade account exceeding a restricted tolerance within the total tolerance, this information must be shown: Thus: "Range from 5 to 15%, average 10% grade defects, including 8% very serious damage, consisting mostly of Scale, Ammoniation and Caked Melanose." (235)

Discoloration should be reported separately from other grade defects, except in the U. S. Fancy grade. (236)

With the exception of a few troublesome grade factors, no attempt will be made to describe the numerous insect injuries, diseases, and defects of citrus fruits in this handbook. Disease information is fully covered in Miscellaneous Publication No. 498, Market Diseases of Fruits and Vegetables which is furnished each inspector. (237)

Creasing of Oranges and Tangerines. In determining whether creasing is severe enough to affect the grade in question, refer to the definitions of damage and serious damage in the applicable standard. (238)

In the Florida Orange standards and the standards for oranges which are applicable to states other than Florida, California and Arizona, the term damage as applied to creasing means that which causes the skin to be materially weakened. Creasing which causes the skin to be materially weakened, in most cases, will crack in a tight pack during the packing process or in the handling during the transit period. Fruit which has reached the destination market without cracking or which does not crack upon applying moderate pressure to both ends of the crease should not be considered as damage. (239)

Serious damage means that the creasing is so deep or extensive as to cause the skin to be seriously weakened. Fruit which is seriously damaged by creasing will generally be cracked open, in a tight pack, before reaching the terminal market. If there is any question, apply slight pressure to both ends of the crease. If the skin does not crack open, it should not be considered as serious damage. (240)

In scoring creasing of tangerines, use the same general interpretation of damage and serious damage, described above, for Florida oranges. The wording of the damage definition is different but both mean the same. (241)

(242) In the California and Arizona Orange Standards, damage as applied to creasing means that the creasing materially weakens the skin, or extends over more than 1/3 of the fruit surface. The skin of an orange which has become materially weakened from creasing will crack open upon applying moderate pressure to both ends of the crease. Fruit in which the skin does not crack open with moderate pressure should not be considered as damaged unless the creasing extends over more than 1/3 of the fruit surface.

(243) Serious damage as applied to creasing in the California and Arizona Orange Standards means that the creasing seriously weakens the skin, or is distributed over practically the entire surface of the fruit. Fruit should not be scored against the U. S. No. 2 grade unless the creasing is distributed over practically the entire surface of the fruit, or slight pressure applied to both ends of the crease will cause the skin to crack open.

(244) Creasing will be handled as a quality factor and reported under the Quality heading on the certificate except on color added fruit. On fruit marked "Color Added" all creasing should be reported under the Condition heading on the certificate, and treated as a condition factor.

(245) Discoloration. The U. S. Standards for tangerines, and U. S. Standards for grapefruit and oranges, other than those applicable to California and Arizona, provide for additional grades based on discoloration caused by rust mite, superficial scars, Melanose or other means. Discoloration is defined in the applicable standards and is based on an aggregate area of a specified shade of color. For grapefruit and oranges the shade is specified as a light shade of golden brown and for tangerines it is a light brown color. Discoloration of a lighter shade of color may be permitted on a greater area and darker shades of color shall be restricted to a lesser area, provided, that no discoloration caused by scars or other means shall be permitted which affects the appearance to a greater extent than the specified area of the designated shade of color. Superficial scars or discoloration caused by other means which do not blend or which are in contrast with the normal color shall be restricted to the extent that the appearance is not affected to a greater extent than the designated shade of color for the specified area.

(246) The term "excessive discoloration" should be used to describe discoloration which affects the appearance more than the amount permitted for the grade. This is advisable because a fruit may be scored against the U. S. No. 1 grade account of the intensity or kind of discoloration, and yet not be in excess of 1/3 the surface. This same principle also applies to the U. S. No. 1 Bright grade, or other grades for discoloration. Light smooth scars which do not cover more than 1/4 of the surface

of an orange may affect the appearance more than 1/3 of the surface of a light shade of golden brown color and, therefore, scored as excessive discoloration against the U. S. No. 1 grade.

When containers are stamped either "Bright", "Golden", "Bronze", (247)
or "Russet", the shipper has specified the degree and amount of discoloration permitted. Excessive discoloration should be reported separately from other grade defects except in the U. S. Fancy grade. For example, a lot of oranges showing 5% defects such as Scab, Scale, thorn puncture, etc., and in addition 15% excessive discoloration should be certified. Thus: "Fails to grade U. S. No. 1 account excessive discoloration in excess of the tolerance."

Granulation (Tree Dryness). The U. S. Standards for all (248)
citrus fruits permit a definite amount of dryness or mushy condition under the definitions of injury, damage, serious damage and very serious damage. In the definitions of these terms, the depth specified is for all segments at the stem-end, or the equivalent of this amount, by volume, when occurring in other portions of the fruit. These definitions are based on the average depth for all segments at the stem-end. Therefore, when the dryness or mushy condition is of irregular depth in different segments, the average depth should be used as the basis for scoring. For example, if in 1/2 of the segments the dryness extended to a depth of 1 inch and in the remainder to a depth of 1/2 inch, the average depth would be 3/4 inch.

The dryness resulting from freezing on the tree is discussed under (249)
the Condition heading. Dryness may occur, however, where there has been no freezing, and is then to be regarded either as a varietal peculiarity or the result of the conditions under which the fruit was grown. This kind of dryness is known as granulation. Valencia oranges harvested late in the season, or from young trees even in early or midseason especially after a drouth, are quite likely to show it, particularly in the large sizes. Thompson Navel oranges may show granulation no matter when they are harvested. In both these varieties, the granulated condition sometimes appears throughout all of the pulp of affected fruits, but more often only in the upper or stem-end portion. Even in fruits showing the latter condition, the granulation if seen in cross section affects all of the pulp and not merely spots in two or three segments, as so often happens in freezing injury.

In tree-frozen fruit, the juice sacs in the affected portions (250)
collapse, wither, and separate from each other and from the segment walls. The fruit feels light in weight.

In granulated fruit, the juice sacs do not separate from each (251)
other or from the segment walls; they also remain turgid, the juice being displaced by solid matter, which is yellow to grayish-white in color. Such fruit feels firm, but is light in weight.

(252) Frequently, fruit shows a large percentage of tree dryness in the large sizes, and none in the smaller sizes. In such cases dryness should be reported according to sizes or by stating the percentage in the large sizes and giving the sizes which show no dryness. This may result in reporting certain sizes below grade on account of dryness. In such cases, no attempt should be made to state the grade of the entire car. A simple statement that certain sizes are below grade and other sizes up to grade will be sufficient.

(253) During periods when no freezing damage has been reported in the shipping sections, the inspector encounters fruit which feels abnormally light, he should put aside all such specimens for cutting. If the suspected specimens cut dry enough to affect the grade in question, they should be scored with the other grade defects.

(254) If the dryness or granulation is such that it cannot be determined with any degree of accuracy, by weight, of the fruit, a blind sample of 5 to 10 fruit should be taken from each box examined and cut and the percentage based on this sample. Thus: "Of samples cut from 5 to 20%, average 12% dryness affecting more than 1/4 inch, including 5% more than 1/2 inch at the stem ends of all segments." However, if an accurate determination cannot be made by this method, or an appeal inspection is requested, or if there is a material difference between shipping point and market inspection, the following procedure should be followed:

(255) Sampling:

1-3/5 or 1-2/5 bushel boxes or equivalents, use a sample of 50 oranges from each container examined.

(256) The entire contents of consumer packages should be used as the sample. Experience indicates a wide variation in different containers in a lot; therefore, a composite sample is inaccurate.

(257) Grading the Sample:

1. Grade and score the sample for external defects, i.e. damage, serious damage, very serious damage, and discoloration.

2. After the fruit has been classified as to external defects, each fruit should be cut for dryness.

(258) a. Cut all fruit classified as U. S. No. 1, scoring fruit with from more than 1/4", to 1/2" dryness in one column and fruit showing in excess of 1/2" dryness in another column.

b. Cut all fruit classified as U. S. No. 2, recording fruit with from more than 1/4", to 1/2" (as information only) and more than 1/2" dryness in another column. (259)

c. A score sheet similar to the following should be used, (U. S. Combination Lot): (260)

Size	Sample	DK	U.S.1 Ext.	1/4-1/2" Dry	Over 1/2" Dry	U.S.2 Ext.	U.S.2 Ext. & 1/4-1/2" Dry	U.S.No.2 Ext. & over 1/2" Dry	SD Ext.	V.S.D. Ext.	Over 1/2 Disc.
150	50	0	31	4	0	17	3	2	1	0	1
150	50	0	30	10	1	16	5	1	2	0	2
150	50	0	28	5	0	19	2	1	1	1	1
			89	19	1	52		4	4	1	4

Less 20

Less 4
Plus 19
U. S. 2 67

Plus 1

5 4 1
Defects 10 Disc. 4

Of the U. S. 1 (externally) fruit, 19 are U. S. 2 and 1 below U. S. 2 - which reduces the number of U. S. 1 specimens to 69. (261)

The 10 fruit of U. S. 2 external quality which show from over 1/4" to 1/2" dryness are recorded for information only - they are still U. S. 2 quality. From 52 U. S. 2 external quality fruits subtract 4 that show more than 1/2" dryness, leaving 48. Add the 19 that were dropped to U. S. 2 because of dryness - making a total of 67 U. S. 2's. (262)

Total defects of U. S. 2 include 10 fruits (5 for dryness and 5 for external defects) and 4 for excessive discoloration. (263)

The inspector should use the following procedure in cutting citrus fruits for dryness (quality), transit freezing and tree freezing (condition): (264)

Cut off the stem end by first cutting the rind to the tip of the segments, cut 1/4 inch deep from the tip of the segments; if injury is found, cut another 1/4 inch, etc. Then cut the blossom (265)

end, and then cut through the rind of the central portion remaining, and pull the segments apart and examine for injury.

(266) The various grades limit dryness or mushy condition at the stem-end, or the equivalent of the amount permitted at the stem-end, by volume, when occurring in other portions of the fruit.

(267) SEE CONDITION HEADING FOR INSTRUCTIONS AS TO REPORTING DRYNESS OR MUSHY CONDITION DUE TO FREEZING. (Pars. 289-292).

(268) Scale. There are several types of scale which are encountered in the inspection of citrus fruits. The most common type is the purple scale which has a brownish-purple covering and is roughly the shape of an oyster shell. From an inspection standpoint it is not necessary to identify the type of scale. All types should be reported as scale.

(269) In scoring scale against the standards, refer to the definitions of damage, serious damage and very serious damage in the applicable standard. Some of the definitions "pin point" scale to a definite area basis for a specified size fruit. For example, in the U. S. Standards For Florida Oranges, a 200-size orange may have a blotch the area of a circle 5/8 inch in diameter without being considered as damage. The appearance of this size fruit with a blotch 5/8 inch in diameter is used as the basis in determining the area permitted on other size fruits. If the scale affects the appearance of other size fruits more than the 5/8 inch blotch on a 200-size, it should be considered as damage. Scattered scale on a 200-size fruit or other size fruit shall be considered as damage when the appearance is affected more than a 5/8 inch blotch on a 200-size fruit.

(270) In the U. S. Standards for California and Arizona Oranges, damage by scale is scored on the basis of 3 circular areas. Only medium or large size scale which can be readily identified as scale, and not easily mistaken for specks of dirt or other objects, shall be considered in determining the grade.

(271) The U. S. No. 1 grade specifies free from damage by scale. To determine whether an orange is damaged by scale, select 3 circles 1 inch in diameter which cover the 3 areas of greatest concentration of scale. The 3 areas must not overlap and must not include any scale which is within a circle 5/8 of an inch in diameter centered at the stem button or stem scar. All scale within the 5/8 inch circle centered at the stem button or stem scar shall be ignored. The plexiglas area diameter gauge furnished to inspectors should be used in locating these circles.

If any one of the 3 circles contains more than 7 scales, of if each circle contains more than 3 scales, the orange shall be considered as damaged. The following table illustrates the interpretation of damage by scale for California and Arizona Oranges: (Examples 1 and 2 illustrate damage, Examples 3 and 4,not damaged). (272)

Examples:	CIRCLE NO. 1	CIRCLE NO. 2	CIRCLE NO. 3	
(1)	8 Medium or large scale	3 Medium or large scale	3 Medium or large scale	Damaged
(2)	4 Large scale	4 Large scale	4 Large scale	Damaged
(3)	7 "	7 "	3 "	Not Damaged
(4)	3 "	3 "	3 "	Not Damaged

The U. S. No. 2 grade specifies free from serious damage by scale. To determine whether an orange is seriously damaged by scale, select 3 circles 1 inch in diameter which cover the 3 areas of greatest concentration of scale. The 3 areas must not overlap but they may include scale surrounding the stem button or stem scar. In the definition of serious damage, the scale at the stem button or stem scar is not ignored as in the damage definition. (273)

If one of the 3 circles contains more than 19 scales, or if each contain more than 9 scales, the orange is seriously damaged. The following table illustrates the interpretation of serious damage by scale for California and Arizona oranges: (Examples 1 and 2 illustrate serious damage and Examples 3 and 4, not seriously damaged). (274)

Examples:	CIRCLE NO. 1	CIRCLE NO. 2	CIRCLE NO. 3	
(1)	20 Medium or large scale	9 Medium or large scale	9 Medium or large scale	Seriously damaged
(2)	10 Large scale	10 Large scale	10 "	Seriously damaged
(3)	19 "	19 "	9 "	Not Seriously dam.
(4)	9 "	9 "	9 "	Not Seriously dam.

Scarring. All citrus fruits are subject to scarring which may be caused by thrip or other insects, and mechanical injuries such as scratches and limb rubs while the fruit is still growing on the tree. Scars may be smooth and affect the shape and texture only slightly, or they may be rough and deep and materially affect both the shape and texture. In California fruit, scarring is one of the most important factors in determining grade. (275)

Scarring which is not severe enough to affect the grade in question should be ignored. The inspector can generally tell from the brand, or by the request of the applicant the grade which the particular shipment is supposed to represent. (276)

(277) In the U. S. Standards For California and Arizona Grapefruit and Oranges and the U. S. Standards for Lemons, the depth and smoothness as well as the color of the scars must be considered in determining grade. Plexiglas slides which show the shades of color designated in the standards are furnished each inspection office for reference. Even though the plexiglas slides were not made to represent the scar colors specified in the U. S. Standards for Limes, they may be used as a guide in determining shades of color designated in the lime standards.

(278) Scars in the other standards are on the basis of appearance, depth and smoothness. When scars are encountered refer to the proper definition in the applicable standard. Grapefruit models which show the limits for scars are furnished to each inspection office and should be used as the basis in scoring scars on grapefruit from Florida and Texas.

(279) Reporting Defects of Combination Grade. To promote uniformity between shipping point and terminal market inspection, and to avoid conflicting percentages of defects, it will be the policy to report defects within tolerance when the product meets the specification of the Combination grade. Example: "Defects within tolerance," or "Defects average within tolerance." If the car or lot fails to meet the grade, naturally it will be necessary to show the percentage of defects the same as when a lot fails to meet the No. 1 grade.

(280) The expression "Grade defects within tolerance" will naturally be assumed to refer to whichever grade is shown under the heading of Grade.

(281) For Quality examples see General Examples following Remarks heading.

(282) CONDITION

See D. M. Handbook - Part II (same heading).

(283) General - Factors to Report. Except for firmness and decay, the factors to be reported under the Condition heading will vary considerably with different lots and different types of citrus fruits. Firmness and decay statements should be made on every certificate but other condition factors are reported only when present and severe enough to affect the grade in question, except on specific request of applicant. In that event, they should be followed with the statement "Not affecting grade." The Remarks heading should also show the reason for reporting factors which do not affect grade. Thus: "Slight skin breakdown not affecting grade reported at applicant's request."

The following factors that are reported should be described under the Condition heading: (284)

1. Firmness.
2. Freezing injury or dryness associated with freezing injury.
3. Creasing on color added fruit.
4. Skin injuries. (Skin breakdown).
5. Sprouted seeds of grapefruit.
6. Color of limes.
7. Stem buttons, whether attached or missing (only on request).
8. Decay.

The various diseases, including decays and physiological injuries, which are treated as condition factors of citrus fruits are too numerous to attempt to cover them in detail. For a complete description of the various diseases, refer to Miscellaneous Publication No. 498 which is furnished to each inspector. (285)

(1) Firmness should be reported under the Condition heading in conformity with the firmness terms and definitions in the applicable standard. Each inspector should become familiar with these terms as used in the standards before making an inspection, and use the proper term or terms to accurately describe the firmness in accordance with the definitions in the standards. (286)

Fruit may feel soft and pliable due to thinness of skin and yet be properly described as firm. Such fruit may be in prime condition and keep for a long period of time before becoming soft. (287)

Reporting Firmness of Fruit Affected by Decay. In describing firmness of citrus fruits, all decay shall be considered in determining the quantitative term or terms to be used. All stages of decay shall be considered as affecting the firmness. For example, a lot of oranges with 5% Blue Mold Rot shall be reported as "Generally firm", provided that the fruit not affected by decay meets the requirements of firm. (288)

(2) Freezing Injury or Dryness Associated With Freezing Injury. For a complete description of freezing injury, refer to Miscellaneous Publication No. 498. The proper method of reporting transit freezing injury is covered in detail in the D. M. Handbook - Part II and should be followed. (289)

All types of freezing injury and dryness associated with freezing injury should be reported under the Condition heading. Tree freezing injury or dryness associated with freezing injury will be counted against grade after it is believed that practically no additional change will take place in transit. General instructions will be issued in the Branch (290)

Letter from time to time following field freezing. If uncertain as to just how to handle, contact your district supervisor or the Washington office before making a report.

(291) When there are no specific instructions issued in the Branch Letter, the inspector should treat dryness as a factor of condition unless it is the equivalent of more than 1/4 inch in excess of what the grade permits, in which case it should be counted against grade.

(292) Policy and procedure for determining scorable mushy condition and dryness following field freezing is the same as that used in determining granulation.

(293) See Paragraphs on "Granulation (Tree Dryness"). (Pars. 248-266).

(294) (3) Creasing in Color Added and Not Color Added Fruit. While there is no experimental evidence to show to what extent creasing will increase in transit, a number of cars inspected at shipping point and at destination indicated rather definitely that marked changes may take place in creasing in lots which have received the color added treatment. Creasing in color added fruit should, therefore, be reported under the Condition heading on the certificate, and counted against the condition.

(295) Creasing on fruit not color added should be counted against the grade, and reported as a Grade Defect. See Quality heading.

(296) (4) Skin Injuries (Skin Breakdown). Citrus fruits, particularly oranges from Florida, frequently show drying out, darkening or sinking of the oil vesicles near the stem end and at times on other parts of the skin. These injuries are described in detail in the Miscellaneous Publication No. 498 under the headings Aging, Brown Stain, Coloring Room Injury, Heat Injury, Pitting, and Rind Breakdown. While each of these skin injuries are described separately, at times it is impossible for inspectors to definitely identify the specific injury. To avoid the possibility of inaccurate certification, it is necessary to designate some term which can be applied to all these injuries. Therefore, the term "skin breakdown" should be used in reporting these injuries on the certificate, except that when the injury has been diagnosed by a pathologist or the inspector is certain as to the specific injury. In that event, the specific injury may be certified. Generally, there will be no objections to using the term "pitting" to describe the abruptly sunken spots in the peel which vary from 1/4 inch in diameter, where they occur singly, to 1-1/2 to 2 inches or more where several pits coalesce. The term "pox" should not be used.

Skin breakdown should be described on the certificate under the Condition heading. In most cases, it will be desirable to show the extent of the injury and its location, which will usually be around the stem end of the fruit. In describing the degree of this injury on the fruit, the following terms should be used: "damage by . . . " when bad enough to score against U. S. No. 1; "serious damage by . . ." when bad enough to score against U. S. No. 2; "very serious damage . . ." when bad enough to score against U. S. No. 3. (297)

Slight skin breakdown should be used in reporting injury which is not severe enough to affect the U. S. No. 1 grade. However, slight injury should not be reported except on specific request of the applicant and then it must be followed with the statement "not affecting the grade." The Remarks heading must also show this information. Thus: "Slight skin breakdown not affecting grade reported at applicant's request." (298)

As indicated, the term "Skin Breakdown" covers a wide variation of injury to the skin, which is the result of a number of conditions. No line can be drawn as to what should be scored on the basis of area affected. For example: "Skin Breakdown" due to heat injury progresses very rapidly and often causes such fruit to be worthless before consumed, while "Skin Breakdown" due to aging may progress slowly, with a fruit showing slight injury on the market being consumed before the condition advances to any considerable extent. (299)

The colored photograph showing the upper limits for skin breakdown for the U. S. No. 2 grade should be used as the guide in scoring skin breakdown. (300)

(5) Sprouted Seeds of Grapefruit. During the latter part of the grapefruit season, inspectors should cut specimens through the center to determine whether the seeds are sprouted. Normally the seeds do not show sprouts before the early part of March or later. Sprouted seeds, when present, should be treated like other condition factors. The following limits shall be permitted in the various grades: (301)

U. S. No. 1 - Not more than a total of 6 sprouts, including not more than 1 extending to the rind, and the remainder averaging not over 1/4 inch in length. (302)

U. S. No. 2 - Not more than a total of 6 sprouts, including not more than 2 extending to the rind, and the remainder averaging not over 1/2 inch in length. (303)

U. S. No. 3 - Not more than a total of 6 sprouts, including not more than 3 extending to the rind, and the remainder averaging not over 3/4 inch in length. (304)

(305) Any fruit with sprouts exceeding those permitted in U. S. No. 3 grade should be scored as very serious damage.

(306) In determining the percentage of sprouted seeds in grapefruit, a sample of 5 to 10 fruit selected at random from each box examined should be cut and the percentage based on this sample. Thus: "Of samples cut from 10 to 20%, average 15% damage by sprouted seeds."

(307) (6) Color of Limes. To avoid the confusion of reporting green color under the Quality heading and yellow color under the Condition heading, it will be the policy to describe all color of limes under the Condition heading, even though the limes are all green in color. The color of limes should be described by the following terms: (1) Good green, (2) Turning, (3) Yellow.

(308) (7) Stem Buttons. Stem buttons should not be mentioned on the certificate, except on specific request of applicant. In that event, it will be permissible to accurately determine the percentage of fruit with stem buttons attached or missing and report in general terms or show the percentage.

(309) (8) Decay. The various decays affecting citrus fruits are fully described in the Miscellaneous Publication No. 498 which is furnished to each inspector. A description of these decays in this handbook would only be a repetition of this publication.

(310) Decay has more effect on the market value of citrus fruit than any other factor. A sufficient number of samples should be examined to give as near as possible an accurate percentage. The sample as a general thing should consist of half boxes when inspecting grapefruit. In other citrus fruit at least fifty specimens should be used as the basis for the sample. However, when unusual or irregular conditions are found, the size of the sample should be increased until the inspector is satisfied that it represents the true condition of the lot. A lot is to be put out of grade on account of decay exceeding double the tolerance in one or more containers only when the entire package is examined.

(311) Decay which definitely follows punctures, cuts, or other defects of grade should be kept separately on the note sheet so that it can be counted against the grade. For example, a lot of fruit with 10% defects and in addition 3% decay following punctures should be certified below grade. Thus: "Fails to grade U. S. No. 1 account defects in excess of tolerance, including decay following punctures."

In reporting decay, always show the stages of development by the use of general terms. Thus: "Range from 3 to 15%, average 8% decay generally Blue Mold Rot, mostly in advanced stage, some in initial stage." (312)

For examples of Condition statements, see general examples following Remarks. (313)

GRADE (314)

See D. M. Handbook, Part II (Same heading).

A definite statement as to grade should be made under this heading.

Reporting Grade on Combination Grade. Cars are frequently sold on the basis of shipping point certificates showing Combination grade with a given percentage of U. S. No. 1 Quality, or on a straight Combination grade. The receiver, as a general thing, when requesting inspection in the market is only interested in knowing whether the commodity meets the contract. This being the case, it is not necessary to show the actual percentage of U. S. No. 1 quality found unless this is specifically requested. When cars are sold to contain a higher percentage of U. S. No. 1 Quality than the grade specifies, it will be satisfactory to report the grade thus: (315)

"U. S. Combination, with at least 60% U. S. No. 1 Quality."

It is not unusual to find Combination grade cars which lack only a few percent of grading U. S. No. 1. (316)

When Other Percentages of U. S. No. 1 Quality are Specified in Combination Grade. When a lot is sold with a higher percentage of U. S. No. 1 quality than is specified in the Combination Grade, no individual container may have more than 10% below the specified percentage. In other words, a car sold as U. S. Combination 60% U. S. No. 1 quality must have not less than 50% U. S. No. 1 quality in each container. However, a car showing an average of 60% U. S. No. 1, but having individual containers with more than 10% less than the average may be reported as "U. S. Combination but fails to grade U. S. Combination 60% U. S. No. 1 quality account range 45 to 85% U. S. No. 1 quality." (317)

For examples of Grade statements, see General Examples following Remarks heading. (318)

REMARKS (319)

See D. M. Handbook - Part II (Same heading).

(320) GENERAL EXAMPLES

(321) (1) California Oranges.

Products: Navel oranges in wire-bound crates labeled "Red Diamond Brand, Riverside, Calif." and stamped "Washington Navels, U. S. No. 1" and to denote size (150 to 252 sizes noted) applicant states 462 crates.

Pack: Generally tight. Oranges wrapped.

Size: Generally uniform in size.

Quality: Oranges are clean, well formed, well colored, mostly fairly smooth texture, some smooth texture. Average 7% grade defects mostly scars, protruding navels and scale.

Condition: Generally firm. In bottom layer crates most oranges in one layer adjacent to floor racks frozen and so located as to indicate that freezing occurred in car. In most samples 1 to 3%, in some none, in few crates 10%, averaging 3% decay Blue Mold and Green Mold Rots mostly in advance stage.

Grade: Now fails to grade U. S. No. 1 only account frozen oranges and excessive decay in few crates.

Remarks: Inspection and certificate restricted to accessible portion of load consisting of stacks between doors and upper 2 layers in ends of car.

(322) (2) California Grapefruit.

Products: Grapefruit in boxes labeled "Blue B Brand, Los Angeles, Calif." and stamped "U. S. No. 1, Marsh Seedless" and to denote size (54 to 80 sizes noted) General Cold Storage records shows 462 boxes.

Pack: Mostly fairly tight, many tight. Grapefruit wrapped.

Size: Fairly uniform in size.

Quality: Clean, well formed, mostly well colored, many fairly well colored, mostly fairly smooth texture, some smooth texture and generally fairly thin to slightly thick, mostly slightly thick skinned. From 5 to 25%, average approximately 15% grade defects mostly excessively thick skins, rough texture and scars.

Condition: Generally firm. 2 to 10%, average 5% damage by pitting. In most samples no decay, in many samples 2 to 10%, average 2% Blue Mold and Green Mold Rots mostly in advanced stage, some initial stage.

Grade: Fails to grade U. S. No. 1 account defects in excess of tolerance.

Remarks: General Cold Storage records show stock unloaded from car P.F.E. 92001 and stored under lot No. 212001.

(3) Lemons. (323)

Products: Lemons in boxes labeled "Big G. Brand, Calif." and stamped to denote size (270 to 360 sizes noted). Applicant states 464 boxes.

Pack: Fairly tight to tight, mostly tight. Lemons wrapped.

Size: Fairly uniform size.

Quality: Stock is clean, mostly well formed, many fairly well formed, fairly well colored, fairly smooth to slightly rough texture, mostly slightly rough texture. Grade defects 4 to 15%, averaging 9%, including 7% internal decline and other serious damage.

Condition: Generally firm. Average 2% decay mainly Green Mold and Blue Mold Rots, mostly in initial stage, some advanced stage.

Grade: Fails to grade U. S. No. 1 Mixed Color account serious damage, including internal decline, in excess of tolerance and account juice content is less than 25 percent.

Remarks: P.R.R. records show stock unloaded from PFE 7105.

(324) (4) Florida Oranges.

Products: Oranges in 1-3/5 bushel wire-bound crates labeled "R Brand, Winter Haven, Fla." and stamped "Color Added, U. S. No. 1" and to denote size (125 to 252 sizes noted). Manifest shows 525 crates.

Pack: Most crates tight, some fairly tight.

Size: Fairly uniform in size. Few crates stamped 252 size contain 288 oranges.

Quality: Stock is clean, well formed, mostly well colored, some fairly well colored and fairly smooth to smooth, mostly fairly smooth texture. Excessive discoloration range from 2 to 20%, average approximately 15%. Of samples cut in 125 size from 10 to 20, average 15% damage by dryness. Other grade defects in all sizes average 5% consisting mostly of scars, scale and punctures.

Condition: Generally firm. In most samples 2 to 12%, in many samples none, averaging 5% damage by creasing. Most stem buttons attached, many stem buttons missing. In most samples no decay, in many samples 2 to 12%, averaging 4% Blue Mold Rot in various stages.

Grade: Fails to grade U. S. No. 1 account excessive discoloration and 125 size also account defects including dryness in excess of tolerance.

Remarks: Stem buttons reported at applicant's request.

(5) Florida Grapefruit. (325)

Products: Grapefruit in standard boxes labeled "Big G. Brand, Florida" and stamped "U. S. No. 1 Bronze" and to denote size (54 to 80 sizes noted) applicant states manifest shows 525 boxes.

Pack: Tight. Fruit wrapped.

Size: Fairly uniform size.

Quality: Clean, generally well formed, mostly well colored, some fairly well colored, mostly fairly smooth texture, some smooth texture. 7% grade defects consisting mostly of misshapen, scale and scars.

Condition: Firm. Of samples cut, most samples none, many samples 10 to 30%, average approximately 10% damaged by sprouted seeds. No decay.

Grade: Now fails to grade U. S. No. 1 Bronze only account sprouted seeds.

Remarks: Applicant states stack unloaded from car FGEX 49032.

(6) Florida Tangerines. (326)

Products: Tangerines in 4/5 bushel flat type wire-bound crates labeled "Blue Moon Brand, J. J. Smith, Orlando, Fla." and stamped "U. S. No. 1 Bronze" and to denote size (54 to 130 sizes noted). Manifest shows 996 crates.

Pack: Fairly tight to tight.

Size: Fairly uniform in size.

Quality: Clean, generally well formed, fairly well to well, mostly well colored and fairly smooth to smooth texture. Excessive discoloration caused by Melanose, average 8% including 2% serious damage by unsightly discoloration. Other grade defects average 6% consisting mostly of scale, scars and misshapen.

Condition: Generally firm. Of samples cut, most samples none, in many samples 10 to 30%, averaging approximately 8% damage by dryness or mushy condition, including 2% serious damage. 1% decay mainly Blue Mold Rot in advance stage.

Grade: Now fails to grade U. S. No. 1 Bronze only account dryness or mushy condition.

Remarks: B&O R.R. records show stock unloaded from car WFEX 6001.

(327) (7) Texas Oranges.

Products: Oranges in 1-3/5 bushel wire-bound crates labeled "T Brand, Brownsville, Texas" and stamped "U. S. Combination" and to denote size (126 to 250 sizes noted). Applicant states manifest shows 525 crates.

Pack: Fairly tight to tight, mostly fairly tight.

Size: 150 to 250 size fairly uniform in size. 126 size irregular sizing. 10 to 20%, averaging 15% under 3-3/16 or over 3-10/16 inches in diameter.

Quality: Clean, well formed, mostly fairly well to reasonably well colored, many well colored and slightly rough to smooth, mostly fairly smooth texture. Excessive discoloration for U. S. No. 2 grade average 8%. Other grade defects for U. S. No. 2 grade averages 5% consisting mostly of scale, scars and creasing.

Condition: Generally firm. 2 to 12%, average 7% damage by skin breakdown, including 2 to 6%, average 3% serious damage. In addition 4 to 10%, average 7% slight skin breakdown, not affecting grade. No decay.

Grade: U. S. Combination, with at least 60% U. S. No. 1 quality.

Remarks: Slight skin breakdown not affecting grade reported at applicant's request.

(8) Texas Grapefruit. (328)

Products: Grapefruit in 1-3/5 bushel wire-bound crates labeled "D Brand, Texas" and stamped "Red Blush" and to denote size (46 to 70 sizes noted). Manifest shows 525 crates.

Pack: Mostly tight, many fairly tight.

Size: Fairly uniform size.

Quality: Clean, mostly well formed, some fairly well formed, fairly well to well colored and generally fairly smooth texture. Excessive discoloration range from 4 to 25%, averaging approximately 15%. Other grade defects 6 to 20%, average 13% consisting mostly of scars, rough texture and scale. Most fruit shows 2 to 8 seeds, many fruit 20 to 45 seeds, averaging approximately 20 seeds per fruit.

Condition: Generally firm. In most samples none, in some 4 to 6%, average 2% decay Blue Mold Rot in various stages.

Grade: Fails to grade U. S. No. 1 account excessive discoloration and defects in excess of tolerance.

Remarks: Number of seeds reported at applicant's request.

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March 1953